The Sight-Saving Review

Volume XVIII Number 2

Summer, 1948

Table of Contents

PAGE

UNDERGRADUATE PREPARATION FOR TEACHERS OF EXCEPTIONAL CHILDREN, Rose E. Parker 63

THE IN-SERVICE TRAINING OF SIGHT-SAVING CLASS TEACHERS, Hazel C. McIntire 70

SOME EFFECTS OF RADIANT ENERGIES ON THE EYE, Cortez F. Enloe, Jr., M.D. 77

PREVENTION OF BLINDNESS LEGISLATION IN ILLINOIS, Dorothy Gray 84

CONSERVATION AND RESTORATION OF VISION IN ADULTS, Charlotte-Ann B. Breed 90

THE FORUM:

Report of the Committee to Investigate Prophylaxis Against Ophthalmia Neonatorum, Alan C. Woods, Phillips Thygeson, and Trygve Gunderson 99

School Health 103

PAGE

NOTE AND COMMENT: 107

The Wise Owl Clubs of America 107

Study of Illumination 108

Minnesota Prosecutes Fake Eye Specialist 108

Delta Gamma Reports Sight Conservation Activities 109

Dr. Zentmayer Honored 110

CURRENT ARTICLES OF INTEREST 111

BOOK REVIEWS 118

Undergraduate Preparation for Teachers of Exceptional Children*

Rose E. Parker, Director
Division of Special Education, Illinois State Normal University, Normal, Illinois

EMPHASIZES the necessity for qualified candidates, as well as for special preparation for teaching exceptional children.

SPECIAL education for exceptional children has had a legal place in the schools of Illinois since 1911. During nearly four decades supplementary laws at intervals have provided a progressive expansion of opportunity for these children. In 1943 a sweeping reorganization of earlier legislation produced what is known as the "Illinois Plan for the Education of Exceptional Children." By this plan all exceptional children of Illinois are guaranteed opportunity for education, excepting only those who are so seriously handicapped as to be uneducable. It is a comprehensive plan, providing for six types of deviating children, those who are: (1) mentally subnormal; (2) blind and partially sighted; (3) deaf and hard of hearing; (4) crippled or handicapped physically in any way; (5) defective in speech; and (6) socially maladjusted. It is a cooperative plan, with many state agencies contributing to a program administered and supervised by the State Department of Public Instruction.

In September, 1943, the State Teachers College Board officially designated Illinois State Normal University as the state-supported teacher-education institution to participate in the plan, and authorized a Division of Special Education. To organize suitable preparation for teachers in the six areas of special education

* Presented at the 1948 Conference of the National Society for the Prevention of Blindness held in Minneapolis, Minnesota, April 5–7, 1948.

was the first work of the new Division. Elective courses for teachers interested in deviating children had been offered at random for many years. The teacher of exceptional children, however, needs complete and specialized preparation. A few courses superimposed upon a preparation planned for some different purpose will not meet the demands made on a teacher of exceptional children. Five years of study, conference, and research have been given to the planning of the six different curricula now available in the Division. They will continue to undergo modification as changing conditions dictate.

These six curricula are similar in some respects but they differ significantly, depending on the area of special education for which preparation is being made. Although graduation with the degree of Bachelor of Science at the end of four years of study entitles the student to certification, actually these curricula are planned to articulate with a fifth year of work culminating in the Master's Degree. Five years of preparation is desirable in all areas of special education, but the work with the socially maladjusted as it is developing in Illinois makes a five-year preparation practically mandatory.

Certain basic considerations affect the education of teachers of exceptional children. These relate to: (1) selection of candidates; (2) the organization of curricula; and (3) extracurricular professional experiences.

Selection of Candidates

Selection of candidates, even in these days of teacher scarcity, is essential. There are persons whose ambition to become teachers of exceptional children springs from misguided motives. The salary differential attracts some, the novelty of the program, others. A few emotionally unstable individuals hope to find in the special class some alleviation of their own personality problems. It is time, effort, and money wasted to encourage such persons to consider work with exceptional children. Resources for the preparation of special teachers should be conserved for those who give promise of effective service. Essential qualities in the prospective special teacher are good mental habits, common sense, ability to enjoy work and play with children, ability to cooperate with people, an

unfailing sense of humor, and an abundant capacity for hard work. Some people argue that successful teaching of usual children should be a prerequisite to preparation for teaching the atypical. Probably all would agree that teaching experience with usual children is a necessity either before or during the preparation for special teaching. Interviews, recommendations, and the case history of an applicant provide some basis for admission to the preparation for this work.

Organization of Curricula

In the organization of curricula for special teachers, certain principles relating to the education of all children are basic and should imperceptibly but surely become an integral part of each teacher's philosophy:

1. Every child, usual and atypical, has a right to the education which he can use to advantage.

2. Exceptional children and usual children are alike in many significant ways which can be utilized to good advantage.

3. Handicapped children should be segregated from usual children only when, and only so far, as their needs are best served by so doing. Society has become progressively more humanitarian in its treatment of handicapped children. Once they were mercilessly exposed to die. Later they were segregated in institutions. Few were permitted or expected to find a self-supporting place in society. When many handicapped children proved themselves educable, they were still segregated in classrooms separate from usual children. Today that policy is practiced only when the child's condition makes it necessary. Effort now is made to adjust an atypical child to classroom living with normal children whenever it is possible, and for as much of his school experience as he can profitably share with them. This is good both for usual and for atypical children. As early as possible the handicapped child must learn to live and share with normal children; the normal child should acquire a reciprocal attitude toward his less fortunate classmate. When a handicapped child's time is divided between a regular class and a special one, the teachers are partners in a very real sense.

4. Teachers in usual classrooms share the responsibility for the education of many handicapped children. Consequently a relation-

ship of mutual understanding and cooperation must exist among all who deal with a given child. All teachers and administrators must regard the work of special classes and special services as an integral and not a segregated part of an educational system.

5. Finally, each child's deviation must be discovered, diagnosed, and dealt with *individually*. His school life should be rich in art experiences, lively with recreational interests, full of opportunities for him to engage in the creativeness with which nature is as likely to endow the handicapped child as generously as the usual child. His so-called fundamental work must not be neglected. Through all these experiences he should come to participate wholesomely in social living to the greatest possible extent, learn to assume a reasonable share of civic responsibility, realize the personal development of which he is capable and, eventually, become as self-sufficient as his limitations will permit. When a child's disability is severe and incurable, he must be taught, and his family also, to accept it. With all possible help, some children will make but little progress toward these goals, but every child should have his share of the opportunities and joys of life. These five principles are fundamental to the education of an atypical child.

To embody these principles in undergraduate preparation for teachers, four lines of study developing parallel to each other over the entire four years of the undergraduate period are provided in our plan. One is a basic core of general work which contributes a broad cultural background of information and understanding. Included in this sequence are courses in English, Contemporary Civilization, World History, Natural Science, and the Arts. A second line of study provides professional background of the general nature needed by all teachers. Here are such courses as American Public Education, Child Growth and Development, and Philosophy. First in this sequence are directed observation and later student teaching and methods with usual children. These two lines of study give the student who majors in special education continuing contacts with teachers-in-preparation in all fields and at both secondary and elementary levels. Thus is established a basis for mutual understanding which will facilitate cooperative teaching in the future.

A third sequence, beginning also in the freshman year and con-

tinuing until graduation, offers work to be taken by all students who major in special education, regardless of their field of specialization. This sequence begins with a survey of special classes and services involved in the education of exceptional children. This survey course, in addition to providing broad experiences in special classes, also serves to eliminate some students who find they are really not fitted for, nor interested in, work with exceptional children. Later come courses in the psychology of exceptional children, mental testing, mental hygiene, and occupational information; also courses in adapted recreation, crafts, and music. This third sequence acquaints all special teachers with the general techniques and develops a degree of understanding of areas in special education other than their own. Many children have more than one handicapping condition. Teachers need to understand the complications of multiple handicaps. It is as important for teachers in the several fields of special education to be mutually understanding and cooperative as it is for regular and special teachers to establish that working relationship. Students who anticipate work in regular elementary or secondary classes are encouraged to elect courses in this third sequence and frequently they do so. Breadth of vision and of professional consciousness should be outcomes of these three sequences.

The fourth line of study is intended to provide the highly specialized preparation in the student's chosen field, as, for example, the field of the partially sighted. Here is Functional Anatomy, a course which shows the child as an organic whole with all parts functioning in relation to the total organism. Here, also, is Sight-Saving Problems—a study of methods for the detection and care of eye disorders in order to give the teachers a proper appreciation of eye care, an understanding of corrective work, and acquaintance with the work of the eye clinic. Here, too, closely coordinated with methods, is the student-teaching of partially seeing children, an experience which familiarizes the student with the procedures for discovery and placement of these children, the organization of their adjusted school programs, classroom methods of sight conservation, special materials and equipment for a sight-saving classroom, and the keeping of case records.

In the four years of any of the six special education curricula

there must be a well-proportioned combination of general, professional and specialized preparation. In Illinois the requirements for certification established by the State Examining Board help to maintain balance among the four sequences. Standards in each area are further set by the State Department of Public Instruction. Between the two state agencies, the content of undergraduate preparation and the amount of specialized training during that period are rather closely defined.

As all good teachers recognize, there is more to a curriculum than subject matter. This is as true of college teacher-education as it is in the elementary classroom. Embodied in each of our curricula, therefore, are some fundamental principles of method. In the first place, the content and activities of each curriculum are intended to provide opportunity for the student to experience a gradual unified growth and development toward full professional stature. The courses are planned to lead from one semester's work to the next in functional sequence. Many contacts with children are used to give point and purpose to the course work. Observation of children, usual and atypical, is an integral part of the preparation. During the entire freshman year, regular planned observations initiate the student into the problems of teaching children and older youth. Study of children is at firsthand, from the freshman through the senior year, in usual and special classrooms, in clinical situations, and on the playgrounds.

Believing that the special teacher will find her place of greatest service at the elementary level, our curricula emphasize the content and methods of elementary education. Reading method is particularly stressed. No student graduates from any one of the six curricula without basic reading method followed by clinical experience in our Reading Laboratory, further evidence of our conviction that the best preparation is made through firsthand purposeful experience with children.

During the sophomore, junior, and senior years, increasing demand is made on the student for independent self-directed work. The highly individualized program which must be planned for each child is beyond the reach of the teacher whose work is stereotyped and routinized. Broad knowledge of materials and methods must be linked with intelligent planning to assure for each child his own

personally adapted school work. In no area of education is the responsible creative teacher needed more than in work with exceptional children.

Extracurricular Professional Experiences

A discussion of undergraduate preparation of teachers of exceptional children would be incomplete without reference to the extracurricular non-credit professional experiences in which students share. Such experiences include, among others, participating in the local chapter of the International Council for Exceptional Children; serving as a volunteer in activities of children in the special classrooms of our affiliated schools nearby; assisting in the diagnostic surveys in speech and hearing which are made as part of our service to surrounding territory; planning and supervising recreation in groups of children from our Speech Clinic and other special centers; cooperating with community welfare and guidance agencies; attending general meetings called by the State Department of Public Instruction and related state agencies; and when distance permits, attending annual meetings of national welfare societies; visiting state institutions; and helping with clinical work beyond the call of ordinary class assignments.

Summary

In summary, undergraduate preparation of teachers of exceptional children should, first of all, be selective, and limited to candidates worthy to insure ultimately teachers of high caliber. The preparation should be planned, both in content and procedure, in accord with established professional basic principles, to provide fine personal development, orientation to the general problems of teaching exceptional children, and a high degree of proficiency with at least one type of handicapped child. It should afford abundant opportunity to work with social agencies in their efforts to meet the problems of caring for these children. First, last, and always, this preparation must maintain the principle that a child—living, playing, working, growing, needing—is always the center of our educative process.

The In-Service Training of Sight-Saving Class Teachers*

Hazel C. McIntire, Director
Division of Special Education, State Department of Education, Columbus, Ohio

POINTS out the many opportunities for growth which the sight-saving class teacher has, in the course of carrying on her professional career.

WHEN we speak of in-service training of teachers we are likely to think of that program as something that we, as directors or supervisors of special education, mold for the teachers and carry to them, ready-made. There is a danger in this point of view. I think we might better state the problem of in-service training by defining it as a program designed to stimulate and encourage the professional growth of the teacher. I like to think of it as growth rather than in-service training.

We who have been in the teaching profession for many years may not find it easy to appreciate the practical problems faced by a teacher who is new in the field or one who is teaching in a community where she is isolated from special professional associations and even from libraries which might hold the special literature she needs. But why limit the need for in-service training to such as these? Philosophies and practices in health and education are in a constant state of flux, and it behooves us all to keep pace with the times. How may the individual teacher grow? How may groups of teachers grow?

We are assuming that the special teacher has had regular teacher education plus the preparation required to teach a sight-saving or other special class. This background should not be viewed as com-

* Presented at the 1948 Conference of the National Society for the Prevention of Blindness held in Minneapolis, Minnesota, April 5–7, 1948.

plete preparation but rather as basic training for special education. Viewpoints and practices will need to be broadened and polished as the teacher meets challenging situations. These problems serve as the stimuli that drive many teachers to summer school or to seek help from their national or state supervisors or organizations. We have an obligation to help these teachers meet their problems and, further, we have the obligation of stimulating all of the special teachers to seek professional growth.

Stimulation Through Responsibility

Most teachers on their own initiative want to grow—the responsibility for their children is sufficient motivation. Occasionally one may find teachers who are quite satisfied to go on, year after year, doing the same old things in the same ways. These must have an awakening and in some way be given the incentive to seek growth. Responsibility may be a very effective incentive. The wise supervisor finds ways of giving such responsibilities to the teachers who need this kind of incentive. The teacher of exceptional children is not only a teacher, she is a *special* teacher, with wider responsibilities than the average. She particularly needs new and challenging opportunities for self-expression. The very nature of special work demands wider social and professional participation.

The Good Supervisor Stimulates Growth

Naturally, the supervisor is the person who has the best opportunity to stimulate the teacher, whether it be through leadership, creative work experimentation, professional reading, or some other avenue.

Most teachers wait anxiously for the visit of a good supervisor. When she arrives at the special class she finds the teacher bringing forth a long list of problems for counsel. This list has been growing day by day, and week by week, since the last visit. Some of the questions they talk over, and arrive at an answer that day. In reply to other questions the supervisor may say: "There is a new book out, or such-and-such company is listing some new sight-saving materials." Much of the supervisor's contribution is through guidance of the teacher to sources that will help her meet the practical problems of teaching a sight-saving class.

The supervisor ordinarily has the legal responsibility to inspect classes and maintain standards. More than that, she is the person who serves as inspiration to her teachers. What books they read, what professional magazines they take, how they spend their summers, depend greatly upon her. Quite important too, when the going is hard, they look to their supervisor for counsel and for interpretation of the sight-saving class program. I do not see how a sight-saving class program can develop without this leadership. Some states have attempted to meet the needs of their partially sighted children through special classes, without having special state supervision. Personnel in the states which do have supervision, and the National Society for the Prevention of Blindness, can testify to the frequency of requests for help from teachers in those states. The supervisor plays a big part in the growth of her teachers.

Research Provides Avenue for Growth

A teacher in New York State has shown unusual professional growth through a research problem which she has been carrying on for several years. She became interested in compiling a guide to sight conservation literature and materials. The literature guide contains a list of all magazine articles, books, and pamphlets on the subject of sight conservation. It is invaluable as reference material. In addition to this, she has compiled lists of books for sight-saving class children, giving the name, publisher, price, size of type and age level. The teacher also did the same for free material suitable for use with sight-saving pupils.

This research has broadened her ability to appraise illustrations, type, and children's literature on the one hand, and the literature guide has given her tremendous growth through reading and research. Working on this problem has made her a bigger person and a better teacher.

Contact with Other Professional Personnel Important

This individual method of growth was uniquely used by a sight-saving class teacher in a county class early this spring. She and the county school nurse took all the sight-saving class pupils and others whose vision was below normal to a nearby city for reexamination

and refraction. Each child's condition was discussed by the physician, privately, with the teacher. She was free to ask any questions and take as much time as needed, for the oculist was devoting the entire day to this class. Due to the fact that each child represented a different eye condition, the teacher received a valuable refresher course. Her classroom work shows that from this day's experience she has developed a finer feeling for children with visual handicaps. In fact, she grew!

Another teacher, new to the small community in which the sight-saving class is located, gained considerable knowledge of agencies and medical services available in that county. She discovered upon her arrival as sight-saving class teacher that nothing had been done to remove a sightless and disfiguring eye of one of her pupils. She was troubled by the fact that this child was being socially handicapped. The family was very poor and unable to pay for surgery. The teacher decided she, personally, would contact various agencies until she could get help for this child. She first visited the local ophthalmologist who had considerable experience in surgery both before and during the war. He examined the boy's eye and advised its removal. The teacher then set about to contact an agency which would assume the financial responsibility. This was not as simple as it first appeared. She made the rounds and finally through the county welfare she was able to get the necessary money. She obtained the consent of the family, and arrangements were made at the hospital. The operation was performed and an artificial eye procured. The teacher, new to the community, had gained not only a knowledge of but acquaintance with the personnel of all the local and county agencies. She had a closer and more friendly contact with the one oculist of the city, with whom she works. Because of the interest she aroused, the teacher was invited to tell of her school program before the county nurses and welfare groups. It is needless to say that growth took place in many ways.

Growth Through Professional Reading

THE SIGHT-SAVING REVIEW and pamphlets from the National Society for the Prevention of Blindness furnish vast material on all subjects of interest, to the teacher, in her special interest. *The Journal of Exceptional Children* not only acquaints her with prob-

lems in her own field but in related fields. It is broadening to know something of the related fields of special education and regular education too. In fact, almost any magazine one picks up may have an article on speech correction, lighting, mental health, remedial reading or some other related subject. All of this reading contributes to the growth of the teacher.

Growth Through Local Participation

Many sight-saving class teachers are called upon to explain their program to P.T.A. and church groups, service and social clubs, health and welfare organizations. This stimulates the teacher to prepare and present her material in the most interesting way. Some have gone so far as to take movies or stills of their class activities to present at such meetings.

Growth may result from attendance at professional meetings other than those pertaining exclusively to sight-saving work. The special teacher must not forget that her program is closely knit with that of the regular teacher. Because she is directly responsible for teaching her pupils reading, arithmetic, spelling and writing, the sight-saving class teacher should attend the local teacher meetings of various grade levels, in order to keep pace with new methods and materials.

Inter-school and Clinic Visits Provide for Growth

Visiting days at school are arranged by the superintendent. The supervisor who has seen all the teachers at work may help the teacher plan visits to certain classes which will give her the greatest benefit. She might spend a few days in a city visiting various age groups in varied districts. The city might also offer the advantage of attending a school, hospital, eye clinic, a lighting institute and numerous other facilities not possible in a smaller locality.

Some states have carried on an in-service program in which handicapped children are brought to a consultation clinic in a strategic center of the county and examined by the health staff. This kind of clinic offers to the sight-saving class teacher an opportunity for both service and growth. By helping in the vision testing she gives a service to the children of the area. The teachers of regular classes often visit such a clinic and the sight-saving class

teacher has a chance to interpret the program to them. She may even instruct the teachers in vision testing in order that they may be able to do a vision screening of their own students. Thus, through working with others, the special teacher grows and, in the process, helps other teachers to grow.

Growth Through Local Organization of Sight-Saving Class Teachers

The large city will have a sufficient number of sight-saving class teachers to form a local organization which can provide a planned program that will be helpful. I think you will be interested in some of the activities of such an organization. From a report of the year's activities of one of these groups, I find on the program committees at work on various problems in the sight-saving field. There are groups visiting factories and stores, making job analyses that will help in the guidance of partially sighted students. Also on the program are lectures by an ophthalmologist, a psychologist, and a speech therapist. There is a demonstration of devices and materials used in the program. All of these activities are possible in a large city school system and all of them contribute to the growth of teachers.

The State Organization Unites Sight-Saving Class Teachers

Not every teacher has an opportunity to be a member of some local organization of sight-saving class teachers. The rural sight-saving teacher depends, in an unusual way, upon the state association for leadership, guidance, and inspiration. At the state meeting she learns of the results of the activities of the local groups and all the teachers interchange ideas. On the day of the state meeting there are formal programs and also many plans initiated for the new year. The state organization gives every sight-saving class teacher a feeling of belonging to the whole state program.

Growth Through National Organization

Not every teacher can attend all of the national meetings. Occasionally, however, the teacher may find a meeting of the National Society for the Prevention of Blindness or of the International Council for Exceptional Children in her own city. When this

happens, the wise school administrator will be sure that the teachers have an opportunity to attend. The leadership and the inspiration that come from attendance at such meetings offer much to the sight-saving teacher. In addition to participating in the formal proceedings, the special teacher has the opportunity to see and talk with her national leaders. What sight-saving class teacher does not welcome the chance to have a personal word with Mrs. Hathaway —the friend of every sight-saving class teacher—the person who has given national leadership to the development of every phase of education for partially sighted children? After attending a conference the teacher may lose her notes on a lecture but she will never lose the inspiration that comes from a Conference like this.

Social Growth Important

The job of teaching a sight-saving class reaches beyond the four walls of a schoolroom—beyond the curriculum—into a wide range of activities and interprofessional participation. The teacher needs to be socially efficient as well as academically prepared. If she is to guide her pupils into the activities which will lay the foundation for economic and social efficiency she must be a versatile person. I have in mind guiding children into scout groups, 4H Clubs, and other organizations—into manhood and womanhood. The kind of person the teacher is makes a big difference.

As we have spoken of the various means of providing in-service education we have pointed out some specific ways of providing incentive and opportunity for teacher growth. We have spoken of creating situations in which a teacher can grow. These are some of the elements in the soil that will feed the inherent desire of the teacher to climb to higher levels of service to her children and her community.

Some Effects of Radiant Energies on the Eye*

Cortez F. Enloe, Jr., M.D., President
Cortez F. Enloe, Inc., New York, N. Y.

DISCUSSES the place of ophthalmological diagnosis of radiation sickness and the use of the radioactive atom in ophthalmological research.

MAN'S struggle to control the physical energies of the earth is a two-way affair. The more he works with them, the more they exert their subtle influences upon his body. Without automobiles there were no automobile accidents. Before electricity was harnessed we had few electrical burns. And before the startling powers of the atom were pried loose by man there was little need for the new section of medicine known as biophysics.

The effects of most types of radiant energy on the eye are well understood. What is yet to be widely understood, however, are the effects of extremely high frequency nuclear energy on ocular tissue. Here we will merely review the essential types of radiant energy and endeavor to report in some detail the knowledge that is at hand on the energy of the atomic nucleus and its relation to the eye.

The occupational aspects of the effects of radiation may be considered in two parts which are distinguished by the nature of the radiations. Pathological lesions may be produced by radiations of the optical spectrum and by nuclear or particle radiations.

As Kutscher† has pointed out, it is best to consider these in terms of "light." This will include infrared, visible, and ultraviolet ranges

* Extract of a Lecture presented at the 1948 Graduate Course on Occupational Aspects of Ophthalmology of the New York University College of Medicine, New York, N. Y.

† Kutscher, Chas. F., Ocular Effects of Radiant Energy. *Transactions of the American Academy of Ophthalmology and Otolaryngology*, July-August, 1946, page 15.

of the spectrum. It should be borne in mind that dust in the factory atmosphere absorbs much of the ultraviolet and moisture much of the infrared.

"Light" Radiation

Only a brief review of the pathological effects of thermal or "light" radiation is necessary here. It affects the cornea and the lens.

The Cornea.—That most sensitive of all parts of the eye, the cornea, reacts promptly to excessive doses of infrared. Complete and lusterless scarification of the tissue may result if the lids are unable to afford protection. The effects of ultraviolet are somewhat less immediate in making their appearance, with watering and stippling appearing some six or eight hours after exposure.

The Lens.—The most common lesion noted is the "glass-blower's cataract," seen where large surfaces of very hot materials are encountered. This occurs in many industries where the subjects have been exposed for long periods of time. Lens changes from ultraviolet radiations are rare.

The protective measures have been developed so skillfully and knowledge of them is so widespread that they will not be discussed here.

Nuclear Energy

An understanding of the fundamental forces at work, when the energy of the nucleus is released must become a part of the knowledge of the well-rounded physician. The subject may seem pedantic and unimportant at present, but that is only because the subject is new and the physician is not aware of the rôle it will play in his practice in the future.

For the limited field of occupational ophthalmology, the peacetime effects of radiations of this nature have not presented a great problem thus far. Exposure of the eye to the small amounts of radioactive material which might be encountered in the factory produces little effect. What the ophthalmologist should concern himself with are the secondary lesions of nuclear radiation of the body which can be seen most clearly in the eye. General knowledge of the nature of atomic energy is necessary, too, if the ophthalmologist is to play his

part in the vast new and exciting vista now opened to us by the radioisotope. This new tool of atomic energy places us today before a huge unexplored field as vast in magnitude and as certain of benefit to our patients as that revealed to medicine by the microscope.

Any discussion of radiant energy has the atom as its point of departure. To start at any point farther down the road is to explore new fields without knowing where one has been. Understanding the nature of the atom is all the more necessary since we have learned that the atom is not really the ultimate indivisible unit of a given element.

This principle was held (and still is in many text books) until 1895. In that year, Henri Becquerel, a Frenchman, discovered radioactivity when he observed the action of radiations on a photosensitive emulsion. In the following year, Roentgen, a German, discovered x-rays. Later, Rutherford, a Canadian, described the various kinds of radiation. Thompson, an Englishman, made the next step by recognizing the electrons. Lawrence, an American, was the first to produce them for he built the first cyclotron; and Fermi, an Italian, became quantity producer of nuclear energy when he constructed the first "pile." Thus, in an international sort of way, the atom was divided and the old theory was discarded for the newer concept that the atom is not the smallest unit of matter.

The Newer Concept

The truth is that an element is not an element at all. It is a galaxy of energies of different potentials. Protons, neutrons, and electrons are its ultimate constituents. All atoms, whether they are iron or iodine, cobalt or oxygen, are composed of the same basic material. They differ only insofar as they differ in the number of protons, neutrons, or electrons they contain. This being true, if one then achieves the power to manipulate these protons or neutrons or electrons, he has acquired the power to transmute the elements, one into the other, iron into gold as the alchemists tried. In other words, the atom is the smallest unit that will behave like a given element, but it is not the smallest unit of matter.

The periodic table strongly suggested that there was an intimate relation of one element to the other which contradicted the idea of their individual independence. But proof of this was long in forth-

coming. When Henri Becquerel discovered that uranium-containing substances emit rays that blacken a photographic plate, the first step was taken. Soon other elements were found that exhibited the same property; namely, radioactivity. The rays were found to be of three types, and were arbitrarily given the names alpha, beta, and gamma. The gamma rays were similar to x-rays and light, while the alpha and beta rays were soon identified as particles that fly out of radioactive substances so fast that they behave similarly to light.

If a substance begins to emit particles, such as alpha and beta rays, it must therefore be losing its identity. This is another way of saying that a radioactive element is an unstable element. It is unstable because it is changing into another element. Radium gives off alpha rays in changing into radon. If the radon continues to emit alpha rays it soon becomes lead. Thus it becomes clear that the atom is not indivisible.

From the atomic number and the atomic weight of an element we can deduce the number of protons and neutrons that form its nucleus. This nucleus of radium is so massive that it is continuously falling apart of its own weight. It is constantly decaying, giving off alpha, beta, and gamma particles. The alpha particle is (as always) composed of two protons and two neutrons. The beta particle is thought to be an electron. The gamma rays are pure energy radiations, and are the rays with which we are most concerned in discussing radiation and the eye.

The source of medical interest in nuclear physics is not the total energy given off by the transmutations of the nuclei. It is the release of the startling amounts of energy which follows the separation of protons and neutrons in the nucleus that interests the militarists and those seeking a new source of power. This subject is of such great interest to medicine because of the very small amounts of energy in the element which can be induced to eject and which can be measured. Indeed, it is not at all out of the question that the greatest benefit mankind will derive from the atomic bomb will be the tracer elements and not the harnessing of a new source of power.

Atomic Radiations and the Eye

To date, no primary damage to the ocular structures has been observed that could be interpreted as a direct result of atomic radia-

tions. In other words, there is as yet no evidence published that would lead us to expect or anticipate the appearance of radiation effects of a nuclear nature on the structures of the eye. This statement must be qualified because the major work done at Bikini under test conditions has not yet been published. This work is being assembled and analyzed at the Army Institute of Pathology in Washington, but up to this time it has not been released to the public.

The greatest effect on the eye directly of an explosion of an atomic bomb comes from the exposure to the blinding flash at the instant of detonation. The lesions found here are identical in every respect to those described above for infrared overexposure.

Even the danger to the eye of the light of the atomic bomb blast is minimal. The physiologic reaction of the lid and the recessed position of the eye offers such protection that very few direct thermal injuries were seen in Japan. The underwater detonation of an atomic bomb, which produces widespread dispersal of radioactive water particles, presents an entirely new hazard. It is very likely that should any of these particles come in contact with the eye, ionization of the ocular tissue would result, leaving permanent scarring of the cornea, inflammation of the conjunctiva, and absorption of the radioactive particles by the tear fluid. No doubt, such effects have been recorded as a result of Operation Baker at Bikini. They must be expected should an atomic bomb be surreptitiously deposited in a harbor like New York's from, say, a tramp freighter.

It is not expected that the conditions just described, which would produce direct effect of nuclear energy on the eye, would be encountered in the peacetime usage of atomic energy.

Effects of Incendiaries and High Explosives on the Eyes

The thermal effects of an attack with atomic bombs do not differ greatly from those encountered after use of incendiaries and high explosives. In Germany, we encountered experiences where people had been exposed to air temperatures up to 1490° Fahrenheit after large incendiary raids.* The most classic example of this oc-

* Enloe, Cortez F., Effect of Bombing on Health and Medical Care in Germany, Morale Division, U. S. Strategic Bombing Survey, Government Printing Office, Washington, 1945.

curred in the heavy raids on Hamburg in the summer of 1943. Here one-third of the city burned out of control for several weeks with the result that the rising heat from the fire caused winds up to ninety miles an hour, and air temperatures of the magnitude just described were recorded. The ocular lesions from exposure to these temperatures were identical to those seen in Japan, the main difference being in the fact that the Japanese burns following the fire of the atomic fire were largely of the flash type. In other words, when any shielding at all was provided, the heat exposure was of such brief duration that burns of the cornea did not appear.

Rôle of Ophthalmologist

The most comprehensive report of the clinical pathology found after the atomic bombing of Japan was that of John J. Flick.* His group in the Manhattan Project and those in the United States Strategic Bombing Survey, show that the ophthalmologists play an important rôle in diagnosing radiation sickness. As Flick points out, correlation of the ophthalmoscopic findings with those of the hematologists and clinicians make it evident that the characteristic fundus lesions will be one of the most reliable criteria for establishing diagnosis of radiation sickness.

From the large number of cases that have been reported, it is evident that exposure of the whole body to large amounts of atomic radiation produces characteristic alteration in the eye. Usually the retinal lesions bear a direct relationship to the blood and organic changes which have been described. The organic changes found to be typical of radiation sickness are petechiae, gingivitis, angina, and epilation, accompanying a characteristic blood picture which is dominated by leukopenia. The retinal changes were limited to that structure and the nerve-fiber layer as it overlaid the nerve head. The hemorrhages are of four types and in the order of frequency of their occurrence, Flick lists them as flame hemorrhage, petechial hemorrhage, "Roth"-type hemorrhage, and vitreous hemorrhage. When one or more such lesions are found, other lesions throughout the body must be searched for and overexposure to atomic radiations should be suspected. Lacking further evidence, it is safe to

* Flick, John J., Ocular Lesions Following Atomic Bombings, *American Journal of Ophthalmology, 31*:137 (February), 1948.

conclude temporarily that such ocular lesions are directly related to the deficiency in the blood elements and are in no way directly related to the action of atomic energies on the eye. The lesions clear up when the blood picture clears up, and thus far there has been no report of permanent residual damage from the retinal lesions.

There can be little doubt that the greatest opportunity which our newer understanding of the effect of radiant energy will give the ophthalmologist lies in the fact that it will enable him to broaden his understanding of the physiology of the eye. One needs but consider briefly now that Vitamin A has been synthesized, we can tag one of its atoms and follow it in its physiologic adventure through the retina. No doubt such a feat will prompt further investigation. Perhaps it is not too much to hope that the pathological physiology of the cataract can be elucidated with the isotopes.

Use of Radioactive Atom in Ophthalmologic Research

Broadly speaking, two conditions must be met before a substance can be employed in such research. First we must be able to isolate a given atom and, second, we must be able to safely make that atom radioactive. Only very small amounts are necessary for us to follow the radioactive atom. The truth of this will be seen from the fact that if one were to render all the hydrogen atoms of a glass of water radioactive and then pour that water into the sea, once it had time to disperse itself the number of these same radioactive atoms we could dip out of any ocean in the world in a water glass would be about five thousand.

The radioisotope, it should be remembered, retains all of the electrical, optical, and clinical properties of the non-radioactive material. The reason for this, of course, is that when a substance is made radioactive only the nucleus is altered. Since these other properties are dependent upon the nature of the electronic shell, they remain unchanged so that the reactions of human physiology accept a radioactive isotope just as readily, and with identical chemical, electrical, and optical responses, as it would the stable mother substance. When the implications of these properties are understood and when they are put to work, they will interest the ophthalmologist far more than the transitory, military application of this new, vital force.

Prevention of Blindness Legislation in Illinois*

Dorothy Gray, *Executive Secretary*
The Illinois Society for the Prevention of Blindness, Chicago

THE author presents a brief but dramatic history of the ophthalmia neonatorum control law in Illinois.

THE Illinois Society for the Prevention of Blindness has had remarkable success in getting legislation in Illinois aimed at eliminating certain preventable causes of blindness. The legislative program was carefully planned and carefully and cautiously executed. The first plans were made in 1927 and included: (1) an effective enabling Act for Sight-Saving classes; (2) a mandatory silver nitrate law; (3) legislation to provide for the control of trachoma; and later, (4) a bill to limit the sale of fireworks for display purposes only; and (5) provision for glaucoma control through the Illinois Eye and Ear Infirmary.

Today, all of these plans have materialized with results that are exceedingly good. Let me quote from an article appearing in the February 1948 issue of the American Public Welfare Association's monthly *Journal*†:

"In Illinois, thanks chiefly to the efforts of the Illinois Society for the Prevention of Blindness, a shift in emphasis from alleviation to prevention occurred in the handling of the problem of blindness. People began to look into causes—began to attack this cause of dependency at its source. Upon inquiry, two factors were singled out as causes: trachoma and blindness occurring at birth. The causes having been identified, measures were inaugurated to eliminate them. Are such efforts worthwhile? Will this approach work?

* Presented at the 1948 Conference of the National Society for the Prevention of Blindness held in Minneapolis, Minnesota, April 5–7, 1948.

† *Attacking Dependency at Its Source*, by Raymond M. Hilliard, Director, Illinois Public Aid Commission.

I shall answer with statistics. In Illinois in 1938 there were 8,500 persons who required and received aid as blind persons; today there are 4,800."

Achieving legislation means a great deal of lobbying, and the art of lobbying includes two of the most delicate fields known to social science—the field of public relations and the field of publicity. The same code we use for good private relations works in the field of public relations. The old fashioned virtues of thoughtfulness, gratitude, courtesy, and honesty are just as important in public relations as they are in private relations. The field of publicity can be a success story if one has the ability to tell even a simple story in an interesting and accurate way. Wonderful stories can be lost if one has no ability to tell them.

Lobbying requires strategy of the same kind that a general must use when embarking on military action. The plan of the opposition must be taken into account—it must be met and it must be overcome. Briefly there are five things to keep in mind:

1. Have the bill drafted by an expert in the field in which the legislation falls.
2. Select the right man to carry the bill—a man who has a good reputation as a humanitarian, if you are working for social legislation; a man who has few enemies; a man of integrity.
3. Introduce the bill early. For instance, at one session of our Illinois Legislature, 1,128 bills were introduced into the House, and 631 in the Senate. Of these, 142 passed in the Senate and 170 in the House. Very few bills with social welfare implications passed. It takes a pretty tough bill to survive a Committee hearing, three readings in the House, a Committee hearing in the Senate, three readings in the Senate, an opinion by the Attorney General, and scrutiny by the Governor. The earlier a bill is introduced the healthier it is for the bill, since it is almost impossible to pass anything after the fifteenth of March, because the calendar gets so clogged.
4. Refer the bill to a proper committee.
5. Lobby the entire Committee before the bill will be heard at the Committee hearing.

In addition, the Illinois Society has always emphasized what may be called some cardinal principles in regard to lobbying: (1) a thor-

ough knowledge of the bill; (2) horse sense; (3) brevity and simplicity—no souls saved after the first five minutes; (4) ability to look far "dumber" than you really are; and (5) be reasonable—never ask for too much.

As Audrey Gradle, the Illinois Society's former executive director used to say:

"With all of this, you have to have a thorough knowledge of legislative techniques, and the light touch. But, if the light touch does not work, use the mailed fist. They will like you better for it."

I have selected one piece of legislation to describe to you today because it deals with a subject of current public interest. It deals with the mandatory silver nitrate law for which the Illinois Society worked long and tirelessly. It was based on a study which the Society conducted and which revealed among other things that in the 1921 to 1931 period, 1,294 babies with ophthalmia neonatorum had been hospitalized in the city of Chicago alone. Besides these, another 77 babies were needlessly blinded from this dread infection. These miserable facts prodded the Society into action, for there was good proof that the problem could be solved. It was a well known fact that securing a mandatory silver nitrate law would be difficult because there would be powerful organized anti-medical opposition. But that did not deter the Society.

The Illinois Society called upon the University of Chicago law school for the drafting of the bill. It was fathered by an outstanding legislator, referred to the Judiciary of both Houses, passed by more than a two-thirds vote in both the House and the Senate. It was sent to the Attorney General for his opinion. The Attorney General withheld the bill from the Governor until the day before the signing power expired, and then sent it to him with the opinion that it was unconstitutional on the ground that it infringed on personal liberty. Here let me quote Mrs. Gradle:

"In all the time I have been in Springfield, I have never seen the House of Representatives absolutely still except the afternoon when the veto message came in and then Mr. Igoe, who had always been one of our staunchest friends in Springfield, rose and said that he thought it was shocking that the Attorney General had handed down an opinion of this kind on a bill which had passed the Judiciary of both Houses, made up of lawyers who knew just as

well as the Attorney General what was constitutional and what was not, and he ended by saying that if it were unconstitutional in the State of Illinois to protect a helpless baby from a lifetime of blindness, it was about time we got a new constitution.

"Mr. Shanahan, Speaker of the House at that time, told me that in all the forty years he had been in Springfield, he had never seen a bill passed over the Governor's veto. But our bill passed by a vote of 116 to 9. I always wish I could end the story there, but it was defeated the next day in the Senate by just six votes."

To be sure, that was a body blow to the Society and another two years of precarious beginning for thousands of Illinois babies. But those two years were used by the Society to do a magnificent job of carrying a blow by blow description of the defeat to every legislative district in Illinois. Standing committees were organized, made up of prominent key people who represented about a million voters.

The League of Women Voters was asked to include the vote on the baby bill in its digest of the ten most important bills of the 1931 session. This was done, and the Society bought thousands of copies for distribution.

The Constitutional Law Department of the University of Chicago was asked to make a study of the Attorney General's opinion and for advice as to whether the form of the bill should be changed. On their advice, the form of the bill was not changed and they also pointed out that the opinion of the Attorney General was not sound.

James Weber Linn wrote a stirring editorial called "The Pen Sword" in which he said:

"The Governor vetoed the bill to make the treatment of the eyes of new-born babies compulsory. He said the Attorney General was not sure that the bill was constitutional, and the fear of any unconstitutional legislation makes the Governor shudder.

"Blindness is a sad affliction. The blind cannot rejoice in the changing colors of the sunset or the infinite yet intimate glory of the stars; they cannot perceive the blueness of the sky; though they can feel the chill of rain; they cannot perceive the faces of those they love, and who love them; they must wander always in blackness. But to the Governor, no doubt, they suffer under an affliction even worse than any of these; they cannot read the constitution of the State of Illinois.

"It is a wonderful thing to be born without imagination; a wonderful and a comforting thing. No man born without imagination ever loses any sleep thinking of the preventable misery of others. No man born without imagination, even if he is a governor, ever wakes in the dark and wonders what it would be like to know darkness only, darkness to the end, starless darkness stretching universal. No man born without imagination, even if he is a governor, ever thinks of his pen as a poisoned sword, with which he may put out thousands of eyes at a stroke. No man born without imagination, even if he is a governor, ever sees himself eclipsing the sun in a thousand skies, building a narrow wall around the hopes of youth, or fashioning a nightmare for a child's dream."

In January, 1933, the silver nitrate bill was taken back to the legislature. The Illinois Society kept in constant touch with their 3,114 committee members and they were exceedingly active. Mrs. Gradle said she came to the conclusion that "nothing can make a politician perspire so freely as fearless, well-informed opponents, who have no axe to grind."

The second baby bill passed the House with a two-thirds vote. There was a terrific battle in the Senate where the bill was threatened by amendments which would have nullified its effectiveness. Word came through that the bill would probably be killed in the Judiciary Committee but Dr. Joseph B. De Lee went to Springfield and saved the bill. Helen Keller sent, at our Society's request, an open telegram to the Senate, imploring each member to think long and earnestly before committing even one child to lifelong imprisonment in the dark!

The bill passed the Senate with a two-thirds vote and went to a new Attorney General for his opinion and a new Governor who signed it on April 18, 1933. It became a law on July 1st, 1933.

What were the results? Blindness from ophthalmia neonatorum was literally wiped out overnight. In a ten-year period only seven babies were blind from this cause, and none since 1944. The incidence of ophthalmia neonatorum has been reduced to 32 cases for all of Illinois in 1947, and we have not seen a single case of blindness caused by silver nitrate in all the time the law has been in force.

The Illinois Society for the Prevention of Blindness has carefully checked all the birth records each year to find the number of infrac-

tions and report back to the State Department of Public Health which in turn does something about them.

It may be of interest to you to know that our Illinois Law needs no change or repeal. It gives the State Department of Public Health the right to approve any "equally efficacious drug." We are confident this approval will be forthcoming whenever medical science proves there is a better prophylactic agent, and you may be sure that The Illinois Society will be on hand to support, to lead the way, or to persuade, whatever the case may be.

In closing I would like to say that legislation provides the base for control, but the Society always is on the alert to spend time and money for effective enforcement.

Conservation and Restoration of Vision in Adults*

Charlotte-Ann B. Breed, *Executive Secretary*
Grand Rapids Association for the Blind and for Sight Conservation

ANALYSIS based on responses from 23 prevention of blindness agencies which describes experiences in case finding and follow-up of eye conditions in adults.

IN order to be familiar with the current status of case finding of eye conditions among adults, I sent an inquiry to a group of local voluntary and official agencies engaged entirely or in part in prevention of blindness work. A total of 23 agencies responded. Five of these active on the local level, and six on the county level are supported by private funds. Of the remaining twelve, ten are official and two are voluntary.

The nature of the programs of all agencies seems to be determined, in part, by the geographical area in which they function, but to a greater extent, by their source of income. Whether on a state or local level, there seems to be a greater opportunity to enter new fields of case finding in those agencies not dependent upon legislative action for their budgets. The balancing factor is the universal indication of the imaginative use of the tools at hand by the personnel of the public agencies. In many states, Public Law 113† has been the opening wedge, and through the resources made available under this act, restoration of vision and medical treatment have been made possible as a forerunner for a broader program for the prevention of blindness.

* Presented at the 1948 Conference of the National Society for the Prevention of Blindness, Minneapolis, Minnesota, April 5, 1948.

† A federal act which "provides for the promotion of vocational rehabilitation of persons disabled in industry or otherwise and their return to civil employment."

Causes of Blindness

The chief causes of blindness reported as a result of my inquiry change from age to age and area to area. In people 50 years of age and over, cataracts lead nationally and in most state areas. However, in Missouri we find glaucoma is responsible for 31 per cent and cataracts for only 19 per cent of blindness.

Infections which attack the cornea or optic nerve are the chief threats to the vision of adults between the ages of 20 and 60. Illinois reports them to be responsible for 51 per cent of blindness in adult residents of that state. Where comparative figures based on periods of time are available, the incidence of blindness from these causes apparently declines as public health agencies, stimulated by prevention programs, focus attention on the causes.

Diseases of the choroid and retina, and trauma were listed on almost all reports, as being among the four leading causes. In one instance—Allegheny County, Pennsylvania—uveitis surprisingly took second place.

Although progressive myopia appeared as a leading cause in many sections, it is not among the first six in national statistics.

For the purposes of our specific discussion we shall confine ourselves to the public health efforts now being made to prevent blindness due to cataracts; infectious diseases, including syphilis, trachoma, ophthalmia neonatorum; glaucoma; and trauma.

On the public state agency level, locating individuals who, without treatment, go blind from one of these causes is chiefly dependent upon: first, referral from interested individuals or groups as a result of public eye health education; or second, from applicants for Aid to the Blind or for services of the rehabilitation agencies functioning under Public Law 113. There are some notable exceptions. Missouri, for example, has organized prevention of blindness committees in every county. These committees are responsible for case finding in their own area. They include key lay and medical persons.

Cataract

In Kansas, the removal of cataracts has proved an excellent way to show the public and the legislature the possibilities of a

medical eye care program. Many other states have followed suit although, at the moment, restoration services are usually limited to so-called employable individuals.

Among those reporting, neither in public nor private state, county, or local agencies is there any apparent concentrated effort to find cataract patients before they have experienced blindness. Though responses to my inquiry show this to be a fact, I doubt that it is entirely accurate. If the prevention agency has a diagnostic file for follow-up purposes and is doing case finding in other areas, the presence of early cataracts must surely be noted, with the resulting follow-up for treatment when the development of the cataract has interfered with comfortable living.

Delay until the applicant becomes eligible for services (when he has only 20/200 vision) is less disastrous for those who have cataract than for those who may have other conditions in which lost vision cannot be restored. Glaucoma is such a condition.

Infectious Diseases

The attack upon infectious diseases causing blindness has been far more direct and intensive. With legislation requiring prophylaxis in 47 states and the District of Columbia, ophthalmia neonatorum is no longer a major cause of blindness. Restoration of vision in a relatively small number of instances presents a possibility, through the use of corneal transplant.

Syphilis, a leading cause of blindness among young and middle-aged adults, is a major concern to all public health agencies. A basic legislative attack has been made in many states. Thirty-six now require premarital and 38 require prenatal seriological examinations. Not all laws are adequate to insure control, however. Advanced methods of treatment have positively increased the number of cures. The availability of public health case-finding methods and treatment, while not complete, is advancing rapidly.

Prevention of blindness agencies have a responsibility beyond generalized education and cooperative relationships with established clinics, as is demonstrated by the Philadelphia Committee for the Prevention of Blindness. A two-year project was undertaken in which that agency followed for treatment a series of syphilitic expectant mothers. During the first year of their program, the

record showed 10 per cent nonsyphilitic babies delivered. During the second year, two women whose treatment was not begun until the sixth or seventh month, delivered babies who had positive seriological tests. Such demonstrations serve not only in saving sight but in supplying material with which to educate the public. The Detroit Society for the Prevention of Blindness carried its educational material to known patients by generalized distribution through the state clinics in that area.

In parts of the country, trachoma is a constant threat to vision. Perhaps the most outstanding attack on this disease is being made by the Illinois Society for the Prevention of Blindness. Local committees were first made responsible for case finding. In a remarkably short period of time a law requiring mandatory reporting of cases to the state board of health and the checking of school children for possible contacts provided additional methods of attacking the problem. The Illinois Society stimulated both educationally and financially the provision of resources for free treatment, with the result that from 1937, when 1600 cases were reported, the incidence of the disease has decreased to 30, reported in 1947. Missouri also has had a remarkable decrease. Prior to 1935 trachoma was second as a cause of blindness, accounting for 14.4 per cent; since that time the percentage has been reduced to only 5.3.

Glaucoma

Glaucoma is becoming a familiar word to the lay population. This educational achievement has been the result not only of the efforts of the national and local prevention of blindness agencies, but of the publication of such articles as "They Need Not Go Blind," by Steven Spencer, which appeared in the March 20, 1948 issue of the *Saturday Evening Post.* The positive approach as illustrated in the title of this article is typical of current public health education thinking.

Finding cases before vision is greatly impaired and while treatment may be most effective presents one part of a broad problem with which each agency is gravely concerned. Here, most certainly, case finding at the time of application for service to the blind is grossly inadequate.

Constant educational campaigns against glaucoma are carried on by local agencies. Their effectiveness seems closely related to the choice of the group to be reached. It is obviously impossible to measure how many early cases of glaucoma are found as a result of general distribution of pamphlets, by lectures or movies, or even by institutes. A few years ago excellent packets were distributed to the general practitioners by the Minnesota Society for the Prevention of Blindness. That agency increased awareness of the disease and placed scientific information in the hands of the general practitioners, who so frequently are the first to see the patients. The results, the Society felt, amply justified the project.

In many localities the practicing ophthalmologists have held diagnostic clinics for practicing optometrists. Where both groups feel this to be a right step toward mutual cooperation such a plan can be very effective. It would seem that such procedure might also be directed toward the general physician.

The establishment of adequate resources for treatment has absorbed prevention of blindness agencies in many areas. The need for care for all income groups has led to the development of clinics which, in all probability, can report better results than the offices of some private physicians.

So universal is the tense, inhibited, worrying personality of the glaucoma patient, so difficult is it for human beings to be satisfied with holding rather than with improving vision, that the value of the follow-up services of the medical case worker was soon recognized. The University Dispensary in Pittsburgh and the glaucoma clinic at the Eye and Ear Infirmary in Chicago, both of which are employing medical case workers, report that only three per cent of their patients are lost to treatment. In both instances the clinics as they now function were established with the encouragement and cooperation of the local prevention of blindness agency. The Illinois Society reports that prior to the employment of medical case workers, only 30 per cent of the patients returned to the clinic for care.

Eye Injuries

Trauma as the cause of blindness in adults appears to be chiefly industrial in origin. How many of the blind eyes in adults are so because of a childhood accident cannot be ascertained. Reports

available from state agencies responsible for workmen's compensation, and through the National Safety Council, do provide us with sufficient evidence to warrant our giving more attention to eye hazards in industry. Thus far, based on the reports provided us, very little activity has been undertaken by any of the local prevention agencies. It would seem possible that the program of the National Society for the Prevention of Blindness could be duplicated on state and local levels. The Illinois Society, recognizing that small industries frequently maintain the least adequate safety practices, undertook a two-year project with which they report they were not entirely satisfied. Of greatest value to the rest of us, I believe, were some of that agency's conclusions. They are based on the precept that industrial activity needs to have as its objective the integration of over-all eye health and safety programs in plant practices. They state that: (1) the prevention of blindness agency's board, or responsible body, must accept the fact that permanent and telling results may be slow in appearing; (2) the most adequate personnel available for the project is absolutely essential; (3) a budget for a minimum of five years, large enough to insure attracting and keeping adequate personnel, and of otherwise covering the expenses involved, should be set aside specifically for the project before it is undertaken.

There may be, therefore, some very realistic reasons why so little attention is being directed to industry. But there may be more that we could do even under our present limitations. Individual plants, such as Western Electric in Kearny, New Jersey, have developed some excellent visual education material which they distribute to their employees periodically. It may well be that similar educational programs directed expressly to industry are already under way in some prevention of blindness agencies. These would not only serve as a case finding media but would lay an excellent foundation for increased activities in that happy future when we shall have all the money we want to do things that need doing!

An educational program, if successful, creates an awareness of an unmet need. Thus questions are sometimes brought to the agency which it does not feel qualified to answer. The National Society for the Prevention of Blindness recommends that at this juncture

the local or state agency put the industry in touch with specialists who are available for consultation in their specific specialties. With an enthusiastic and informed agency staff member to encourage the plant to follow through on recommendations, much can be gained. The National Society says that if we can get one industry in an area to establish an adequate program it will sell itself, and other industries will tend to follow suit.

Case-Work Needs in Sight Restoration and Eye Treatments

Being threatened by blindness means being threatened by darkness and dependency. The eye is the medium through which we receive most of our stimulations from the outer world, and a threat to it affects the mainspring of our existence. Blindness itself means different things to different people. A case worker concerned with helping cataract patients to accept surgery finds that where the socially acceptable dependence has filled a previously unmet and possibly unconscious need, a painful reorganization of the person's personality is a necessary prelude to restoring vision.

Medical care, with its giving over of responsibility to another human being, is fraught with implications to the individual which are based on other relationships he has had. When surgery under anesthesia is required, this factor becomes dominant.

Cooperation of the patient under long, painful treatment may well be possible only as a result of repeated interpretation of the need of the treatment, and of continued encouragement. When the recommendation is not for glasses, drops, salve for the eyes, but for treatment of a systemic disease, misunderstanding is acutely possible. In the case of glaucoma patients, certain traits of personality seem to be universal and, possibly, at least partially responsible for the disease itself. Control of the disease is thus greatly affected by whether modification of the causal and irritating factors in the personality are possible.

Where infectious diseases exist in epidemic form it is not enough to provide treatment, even to cure. The underlying causes must be corrected or, sociologically speaking, the results are only palliative. It is, therefore, most reassuring that every prevention of blindness agency which reported is aware of the importance of the patient as a person. Staff members, skilled in the recognition of all of the

factors involved and in the treatment of those factors, are placed in responsible positions not only in the direction of case finding but in following the patient to and through treatment. In many agencies on the state as well as the local level, medical case work is an integral part of the program. This is particularly true where the program had a basic responsibility for providing medical care.

Many prevention of blindness agencies have encouraged and cajoled their treatment sources to include skilled case work. Where the patient is only in indirect contact with the agency, as in a consultative program on a state level, medical case workers work closely with the local workers. In a closely cooperative relationship established between agencies we again find them interpreting the more or less unique problems of the eye patients.

Medical case work, per se, would not appear to be an essential supplementation to the prevention program itself if it is not responsible for medical care, but its availability to the patient from the time he is diagnosed to the final conclusion of his treatment is a potent tool in saving sight.

Conclusions

The reports received from prevention agencies indicate that leading causes of blindness differ in various localities. It would therefore seem that:

A study to determine local causes is prerequisite in a case-finding program.

Public health education has to be positive and dynamic to bring measurable results. It is a long hard row to hoe, but the row we all must hoe with diligence.

Case-finding demonstrations are of value from the point of view of the cases found, and the educational material they make available. Where they can become a permanent and integral part of the health services of the area they reach their ultimate.

There is little point in case finding unless there are treatment resources, adequate both in quantity and quality. There is little point in case finding unless there is assurance that the patients are reached and followed through with treatment.

Limited budgets limit programs. Our chief counterirritant seems to be the imaginative, ingenious, and sound use of available funds.

Last, but most fundamental, every case of incipient cataract, every case of syphilis, every case of abnormal tension, every eye hazard in industry is a threat to a person. To fulfil our obligation to him he must be seen and understood and treated as an individual.

The Forum

THIS section is reserved for brief or informal papers, discussions, questions and answers, and occasional pertinent quotations from other publications. We offer to publish letters or excerpts of general interest, assuming no responsibility for the opinions expressed therein. Individual questions are turned over to consultants in the particular field. Every communication must contain the writer's name and address, but these are omitted on request.

Report of the Committee to Investigate Prophylaxis Against Ophthalmia Neonatorum*

In the April, 1948 number of the *Woman's Home Companion*, appeared an article entitled "Can Present Laws Blind your Baby?" The essence of this article is a protest against the use of silver nitrate as a prophylactic for ophthalmia neonatorum and strong recommendations that penicillin or some sulfone treatment be substituted. In support of this condemnation and recommendation, the Credé method is termed antiquated, the frequency of an irritative conjunctivitis is stressed, and two cases of blindness following the use of the Credé method are reported, both seen by Dr. Lehrfeld. In one of these it was known that too strong a solution of silver nitrate had been used. No mention is made of the strength of silver nitrate used in the second case. The resolution presented by Dr. Lehrfeld at the 1947 A.M.A. meeting is emphasized and as further supporting evidence for the view expressed in this article, there is cited the work at the McKinley Hospital in Trenton. Dr. H. Charles Franklin's paper (Prophylaxis against Ophthalmia Neonatorum—*Journal of the American Medical Association*. 1947, 134–1230) is somewhat luridly and incompletely reviewed. Mention is made of the investigation of Dr. Eastman in Baltimore along similar lines, but no results are reported.

The immediate criticism against this article is not the underlying idea, but the highly sensational manner in which it is written. The laws are "antiquated"; Dr. Lehrfeld "was shocked to find" two or three cases a week of purulent conjunctivitis in infants, most of which

* Report of a special committee of the American Academy of Ophthalmology and Otolaryngology appointed by President G. H. McGaskey and approved by the Council, June 26, 1948. This report has also been approved by the Section on Ophthalmology of the American Medical Association, June 26, 1948.

cleared. Such facts that 140 babies showed no gonococci in their eyes on microscopic examination of smears from their conjunctivae are cited as evidence against the use of silver nitrate; the statement is made that "parents would rise in wrath if theirs were among seventy-five innocent children who had been severely punished, perhaps injured, because twenty-five others might need correction."

Ignoring the rather extreme manner in which this article is written, the actual evidence in favor of the use of penicillin as a prophylaxis in ophthalmia neonatorum may be summarized as follows: Dr. Franklin used the crystalline salt of penicillin in a concentration of 2500 units to the cc., and after irrigating the eyes with salt solution, one drop of the penicillin solution was instilled in each eye and this repeated on the three following days. Nine hundred sixty-one infants were treated in this manner and the results compared to 749 infants treated with the conventional Credé method. In the penicillin group, an irritative purulent conjunctivitis occurred in 2.1 per cent of the cases against an incidence of 6.0 per cent in the silver nitrate group. In the silver nitrate group pus appeared the first day in the greater number of instances, while there were no first-day cases in the penicillin group. Thereafter the incidence of irritative conjunctivitis was essentially the same in both groups. In the nurse report from home study there was no statistical difference in the occurrence of pus, discharge or history of infection. Edema of the lids occurred in 60 per cent of the silver nitrate treated group, and in 30 per cent of the penicillin group. After the third day there was no statistical difference in the two groups. There was no incidence of gonococci conjunctivitis in the penicillin group while one case occurred on the fourth day of the silver nitrate group—again there being no statistical difference. The conclusions of Dr. Franklin were that penicillin prophylaxis compared favorably with silver nitrate and that it was to be preferred because the danger of permanent injury to the eye was eliminated. Dr. Franklin, however, presented no evidence of permanent damage following the use of silver nitrate. A later communication from Dr. Franklin published in the *Military Surgeon* (1948—vol. II, 179) gives some bacteriological details of this work, but does not add substantially to the results before reported.

Dr. Eastman's investigation at the Johns Hopkins Hospital, to which reference is made, may be summarized as follows: (personal communication) from January 1 to December 31, 1947, the following procedure was used in the obstetrical work of the Johns Hopkins Hospital as a substitute for the Credé method. Upon admission to the delivery floor, the mother received

200,000 units of penicillin intramuscularly, this being repeated in the event the labor lasted longer than eighteen hours. The newborn baby received 50,000 units intramuscularly within 15 minutes after birth. This procedure was carried out in 2512 cases. The period of accurate hospital observation was less than 10 days, and the follow-up home observation was unsatisfactory because of the nursing shortage. However, under this regime, there were no observed cases of gonococci conjunctivitis, and no reports of such cases in this series from other physicians or hospitals for infectious diseases. A similar program was carried out in the Sinai Hospital in Baltimore, where from April 1, 1947, to May 1, 1948, 2450 babies received similar penicillin prophylaxis, silver nitrate being omitted. The period of hospital observation was not less than six days. Again, no cases of gonococci conjunctivitis were observed.

The arguments against the immediate use of penicillin as a prophylaxis for ophthalmia neonatorum may be summarized as follows:

1. It must be realized that the Credé method (silver nitrate) is not used as a preventive of ophthalmia neonatorum but is primarily a prophylaxis against gonorrheal ophthalmia of the newborn. The proper instillation of 1 per cent silver nitrate is necessarily followed by a certain amount of conjunctival reaction which may vary from minimal congestion up to a sterile purulent conjunctivitis. There is no evidence, however, that this conjunctival reaction has resulted in any visual loss. Thus the case against the use of silver nitrate appears to be greatly overemphasized (see Report of the Sub-Committee on Prophylaxis of Ophthalmia Neonatorum—New York Academy of Medicine, 1947). In a personal communication, Dr. Eastman has stated "I am certain the allegations made in regard to silver nitrate are quite preposterous. Thus in my 25 years of obstetric practice, covering supervision of not less than 40,000 births, in all of which silver nitrate was used, I know of no instance in which this agent has caused any permanent damage of any kind to the eyes. Moreover . . . I was acquainted with no report in the literature in which silver nitrate in correct dosage has ever been incriminated as the cause of blindness."

2. Despite the claims to the contrary, the superiority of penicillin over silver nitrate is not yet demonstrated. Thus Dr. Frank E. Whitacre, in whose department Dr. Franklin's investigations were conducted, states in a personal communication to Dr. Foote of the National Society for the Prevention of Blindness. ". . . The efficacy of penicillin as compared to silver nitrate for the prevention of ophthalmia neonatorum is far from proved. The work was done in our department and would need to be

confirmed in other institutions."

3. Neither penicillin nor silver nitrate is effective against virus infection. Penicillin is relatively ineffective against coliform organisms and some strains of staphylococci. The existence of penicillin-resistant strains of gonococci has been established.

4. The dose of penicillin, as used by Dr. Franklin, was instillation of a 2500 unit to the cc. dilution once daily on four successive days. This greatly increases the nursing load. The best manner of administration, whether by intramuscular injection of the mother and child, instillation of collyrium or ointment in the eyes of the infant, etc. has not yet been established. The intramuscular injection carries a certain theoretical danger. Thus in the Johns Hopkins series, there were three unexplained deaths in syphilitic children in the first 48 hours. The possibility that these deaths were due to a Herxheimer reaction was carefully considered and could not be dismissed. Another theoretical objection to the intramuscular use of penicillin is that it may mask evidence of congenital syphilis.

5. The correct dosage of penicillin as a prophylaxis in infants is not yet known. Dr. Eastman believes his initial dosage of 50,000 units intramuscularly was unnecessarily high, and in his future investigations plans to use a much reduced dose. Further, it is a matter of common knowledge and experience that the single instillation of one drop of a 2500 unit to the cc. solution of penicillin is inadequate in the treatment of any virulent conjunctival infection. The recent availability of a 100,000 units to the gram of crystalline penicillin G. ophthalmic ointment opens up new fields for investigation, reducing the nursing load, vastly increasing the effective dosage, and prolonging the time of application of penicillin to the conjunctival sac.

In view of the incomplete present state of our knowledge on this subject, your Committee deplores the recent article in the *Woman's Home Companion*, and is in full agreement with the conclusions and recommendations embraced in the report of the Sub-Committee of the New York Academy of Medicine—namely, that no changes be now recommended in the existing laws. It is the further opinion of your Committee that while it is possible, indeed even probable, that some form of antibiotic prophylaxis will eventually replace the present use of silver nitrate, that much further investigation of the matter is needed before any concrete recommendations can be made. Such investigations are now in progress in established clinics, and it is hoped that the answer may ultimately be forthcoming.

ALAN C. WOODS, *Chairman*
PHILLIPS THYGESON
TRYGVE GUNDERSON

School Health

Editor's Note. — **Because of our interest in school eye health, and recognizing the public health implications of the eye health program, we felt that the following discussion is of special interest to our readers. The entire report, *Health Appraisal of School Children*, was edited by Dean F. Smiley, M.D., and Fred V. Hein, Ph.D. It is a report of the Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association.**

Principal Recommendations and Conclusions

1. In order that a school health program may be kept continuously in proper relationship with public health services, welfare services, medical and dental services, and all the health resources of the community *it is essential that some form of community health council*, bringing together representatives of all local groups with definite health responsibilities, *be formed.*

2. Wherever there is a school, *the local community should budget for a school health program* in the department of education, in the department of health, or in both. In that budget *there should be adequate provision* for the salary of a *well qualified medical adviser* serving the school full time or part time as the need requires.

3. Every *school system should have* an advisory *school health* council, *every school a health committee*, every local *medical society a school health committee.* In some instances such committees or council can best be developed within the framework of an already existing plan of organization.

4. Wide *recognition* should be *given* to the fact that in the schools and health departments of many communities *health education consultants* or coordinators have been found to be *very helpful in developing* the cooperative type of *school health program* which succeeds in utilizing all the resources locally available.

5. The *physician's time* in the school can be *best utilized*,

(a) *If* he is *employed as school medical adviser* rather than school medical inspector.

(b) *If* the routine *medical examinations* whether done by the family physician or the school physician, *are spaced at three-year intervals* during the school life of the child.

(c) *If pupils* in need of special examination and advice *are carefully selected* by the teacher and made the subject of a physician-teacher conference.

(d) *If considerable portions* of the routine examinations *are delegated to teachers and nurses*, reserving for the physician only those portions which he alone is equipped to do.

6. Since immunization is necessary for protection particularly in the infancy and pre-school period, the *schools should* definitely *discourage* the practice of *postponing inoculation* to the period of *school entrance.*

7. It is essential that teachers be aware of the physical condition of their pupils. *Medical examination findings* of her pupils *should* therefore *be interpreted to the teacher* in the physician-teacher conference, making certain that the teacher thoroughly appreciates the importance of safeguarding all matters of a confidential nature.

8. *Instruction* as to the need and *value of voluntary planning* for *medical, dental and hospital expenses* through prepaid programs *should be stressed* in the high school curriculum.

9. *Cumulative health records should be a part* of the child's *total school record* throughout his school life.

10. In *determining* the *content* of the *physical education* program the *physical education teacher*, the *physician* and the *pupils* should all play an appropriate part.

11. There should be *increased recognition* of the desirability of *joint participation* of boys and girls in *physical education* or *recreation activities.*

12. Physicians and physical education teachers in the various communities should arrange *joint meetings* for the *discussion* of such problems as the *individual* and *adapted* physical education *program* and the classification of pupils for physical education activities.

13. In those communities where graded types of physical education activities adapted to the varying needs of pupils are available in the school, *permanent* and *blanket excuses* from physical education *should rarely if ever be given.*

14. *Teacher training institutions* should give health the importance it merits by (a) *providing efficient health service* experiences for students and faculty, (b) *establishing* a coordinating *health council* to inculcate health in the general curriculum, (c) *providing* thorough *instruction* in *child growth* and development, (d) *developing* general *realization* of the fact that *all teachers should contribute* to the health program whether they are health teachers or teachers of other subjects, (e) *utilizing all community services* and facilities in the program of training teachers to meet their health responsibilities.

15. *All* school health service *personnel should have* experience in *field work* as a part of their preservice education.

16. *Medical schools* should give *additional training* to medical stu-

dents in regard to (a) the *relationship* of the *physician* to the *school* and the *community*, (b) the *physiology* of *exercise* and the function of physical education in the life of the child, (c) the *pediatric examination* as the *model* for school examinations, (d) how the *school physician* may *function* as a *medical adviser* rather than a mere medical inspector.

17. *Schools of public health* should give increased *emphasis* in their training of health educators, physicians and nurses to (a) *school health*, (b) the basic philosophy of *general education*, (c) *school organization* and administration.

18. The *training of school nurses* (a) should be *founded upon* the *training given to prepare a graduate nurse as* a generalized *public health nurse*, (b) *should include* work in *child growth* and development, and *field work* in rural as well as city school health programs, (c) *should emphasize* the *status* and *functions of the nurse* in the school, the *obligations* of the school nurse to other community organizations, the *duty* of the school nurse *to participate* in group work with teachers.

19. In the development of in-service education programs for teachers and school health service personnel:

(a) *Public health authorities* and *educational authorities* and the *medical profession should cooperate* and jointly provide support and guidance.

(b) *Pilot studies* should be *set up*, followed closely and evaluated carefully.

(c) *Emphasis* should be placed *on* the cultivation of *parent interest* in the school health program.

(d) The *problem-solving method* would appear to be the *method of choice.*

(e) *Publications* and *extension courses* have important parts to play.

(f) Close *liaison* with the *American Medical Association* through its Bureau of Health Education and with the *American Dental Association* through its Association of Public Health Dentists should be maintained.

20. In *every community* there should be *planning* and *in-service education conferences*, *institutes* and *workshops* involving teachers, physicians, nurses, dentists, dental hygienists and others interested in the community health program to work out problems related to that community.

21. There is *urgent need* for *research* into many phases of school health service *and* particular need for *evaluation* of procedures not only in terms of defects found and remedied but also in terms of educational outcomes in the child, increased understanding of the child by the teacher and increased provision of special programs of education for the exceptional child.

22. *All agencies* that produce printed materials in the field of school health service *should send copies* of those materials to the *U. S. Office of Education*, the National Education Association, and the American Medical Association. The U. S. Office of Education should be requested to establish a center for storing, indexing and disseminating such materials.

23. A *joint committee* composed of representatives named by the American Medical Association and the American Association for Health, Physical Education and Recreation (perhaps as a subcommittee of the Joint Committee on Health Problems in Education of the NEA and AMA) *should be appointed to draw up recommendations* regarding (a) the *administration* of the *individual and adapted program* of physical education, (b) the *medical examination* and *guidance* of athletes.

24. Authoritative *committees* already functioning *should be asked* or new committees should be formed *to study* (a) posture, (b) the *effects* of vigorous physical *activity* on the *cardiovascular system*, (c) *psychological attitudes* of participants toward physical education activities and (d) *energy expenditure* in the various types of physical activities.

25. *State medical societies* and associations should be *urged to plan* jointly with their health department, education department and education association for the development of *conferences at the state level* which are comparable to this conference at the national level. It is suggested that the needs of rural schools should receive special consideration.

Note and Comment

The Wise Owl Clubs of America.—The National Society for the Prevention of Blindness has conducted a continuous aggressive educational campaign to reduce eye accidents in industry. Plant safety records show that eyes can and are being saved by the thousands through the expedient use of protective equipment. Management is, of course, responsible for requiring it, but the men and women working in the plants have to be conscientious about wearing goggles and safety spectacles in order to safeguard their own eyes and incidentally to establish a good safety record.

A little more than a year ago the Safety Division of the American Car and Foundry Company received a letter from Joseph Folks, a grinder in one of the plants, who is an example of this kind of conscientiousness. He wrote:

"As a grinder in the cleaning room at the St. Louis Foundry for the past seventeen years I have worn my goggles religiously, and must confess that I never realized the importance of this equipment until recently when a flying chip fractured one of the lenses with no injury to my eye.

"I have since wondered just how many workers in ACF have been as fortunate as myself. Inasmuch as many of us have something in common, could we not be associated through a club with membership limited to those workers who have saved an eye through the wearing of goggles? I am thinking of the Caterpillar Club in the Army Air Corps, where the condition of membership is a life saved through the wearing of a parachute."

As a result of this letter the company's public relations department founded the WISE OWL CLUB and designed the WISE OWL insignia. The records show that in the American Car and Foundry Company 122 workers are eligible for club membership through the fact that one or both of their eyes were saved by the correct use of protective goggles.

Recognizing the validity and worth of this plan, the National Society is now sponsoring WISE OWL CLUBS in industrial plants all

over the country, and early in the fall will announce details relating to the establishment of the clubs and the terms of eligibility.

Study of Illumination.—The National Society for the Prevention of Blindness is gratified that two members of its Board of Directors, Conrad Berens, M.D., and Leonard Greenburg, M.D., have been named on a committee to consider the problems of proper illumination. The committee, representing the Illuminating Engineering Society and the American Public Health Association, consists of the following members: Leonard Greenburg, M.D., M. Allen Pond, and Donald Y. Solandt, M.D., D.P.H., representing the A.P.H.A.; and Conrad Berens, M.D., E. S. Crittenden, D.Sc., and E. M. Strong, representing the I.E.S. C. L. Crouch, technical secretary of the I.E.S. serves as a consultant, and Francis B. Elder, engineering associate, A.P.H.A., serves as secretary of the committee. The progress report of the committee closes with the following statement:

"It is the opinion of the committee that, whereas standards commensurate with those for schools can be set for other tasks, the experimental evidence at present available is insufficient to justify the recommendation on a scientific basis of an ideal level of illumination for many given tasks. Fundamental research is needed on lighting, on visual phenomena and on their interrelations. This is essential before standards can be established more firmly on scientific fact than on engineering judgment. Toward this end the committee is undertaking the preparation of a list of research projects designed to provide data that will fill the more obvious gaps in present knowledge relating illumination to the visual processes. The committee will encourage other agencies to carry out these projects as the need is indicated."

Minnesota Prosecutes Fake Eye Specialist.—A recent issue of the *Journal* of the A.M.A. discloses the fact that Elliot Wilkinson, of Dallas, Texas, was sentenced to not more than five years in the Minnesota Prison at Stillwater, after he pleaded guilty of having swindled a Winona farm woman out of $60 by falsely representing himself as an eye specialist from Chicago, and making a diagnosis of cataracts. Wilkinson's record includes a sentence of five years in

1932 in the State Prison at Stillwater for grand larceny in the first degree, growing out of a $1,500 swindle perpetrated in 1924; seven years in the Federal Prison at Atlanta, Georgia, and five years in the Virginia State Prison at Richmond. Wilkinson represented himself as an eye specialist and, after diagnosing cataracts, he would take a large fee from the patient. He would insert a liquid preparation into the eye, and show the patient a tiny piece of tissue paper which he claimed to be the cataract.

Delta Gamma Reports Sight Conservation Activities.—Following the establishment of the Delta Gamma Project Scholarship fund, in 1946, the general committee appointed a committee of well-qualified professional persons actively engaged in sight conservation or aid to the blind, to advise on the screening of candidates. The committee now consists of LeGrand H. Hardy, M.D., American Orthoptic Council, Chairman; Mrs. Virginia Smith Boyce, administrative assistant, National Society for the Prevention of Blindness; Ruth E. Lewis, professor of social work, George Warren Brown School of Social Work, Washington University; Ruth B. McCoy, assistant director, New York State Commission for the Blind; Lillian Ray Titcomb, M.D., president of the executive committee, Nursery School for Visually Handicapped Children, Los Angeles; and Berthold Lowenfeld, Ph.D., director of educational research, American Foundation for the Blind.

The original application form developed by the professional committee was revised in the spring of 1948. Preliminary screening has been done by the general project committee with the advice of Mrs. Boyce, when necessary. Two awards of $300 each have been made for the training of orthoptic technicians, and two awards have been given for the training of prospective teachers of partially seeing children. Four additional completed applications are in the process of being screened; and twelve applications are under consideration: seven prospective orthoptic technicians, four teachers of partially seeing school children, and one specialist for blind preschool children. Of the twelve, it is expected eight may be filed soon. Regarding the future of the project, the report states:

"The record, regarding both the candidates for awards and the money with which to make them, indicates that Delta Gamma

Project Scholarships are well on the way to success. The general project committee firmly believes that here lies an unparalleled opportunity for Delta Gamma to be of very real service in an ultimately economical way. We also firmly believe that here lies an unparalleled opportunity for widespread and far-reaching good will toward the Fraternity."

The resolution voted unanimously by the Fraternity Convention, June 27, 1948, would seem to assure a successful future for the projects so energetically undertaken by the Fraternity. The resolution states:

"Be it resolved:

"That an annual fund of $1500 be maintained for the awarding of Delta Gamma Project Scholarships in the fields of sight conservation and aid to the blind exemplified by specialized prevention of blindness study, training of orthoptic technicians, training of teachers of partially seeing children, and training of specialists for preschool blind children; such scholarships to be financed by voluntary contributions from individuals, chapters, and associations.

"If in any one year the voluntary contributions fall below $1500, the amount necessary to bring the fund to $1500 for that year shall be contributed by the Fraternity from the general fund of the Fraternity treasury.

"Be it also resolved:

"That the Fraternity treasurer immediately set aside a loan fund of $2000 from which loans may be made for such training as outlined above, to candidates approved by the professional advisory committee, the general project committee, and the Fraternity council; such a loan fund to be administered by the Fraternity in the usual manner."

Dr. Zentmayer Honored.—The National Society is pleased to announce that William Zentmayer, M.D., one of the members of its Board of Directors, was awarded the Howe Medal of the American Ophthalmological Society for 1948. The medal, first awarded in 1922, has been given only fifteen times—ten times to distinguished American and five times to foreign ophthalmologists.

Current Articles of Interest

Retinal Detachment. A Survey of the Etiology and Results of Treatments on Phakics and Aphakics, Cecil H. Bagley, M.D., *American Journal of Ophthalmology*, March, 1948, published monthly by the Ophthalmic Publishing Company, 700 North Michigan Avenue, Chicago 11, Illinois.

Dr. Bagley reports findings on 304 cases of retinal detachment (246 in phakic eyes and 58 in aphakic eyes), operated upon at the Wilmer Ophthalmological Institute, between 1927 and 1944. The author considers etiologic factors, preoperative findings indicating favorable or unfavorable prognosis, and comparison of results of the various operative procedures.

Forty per cent of the detachments occurring in phakic eyes were myopic, but myopia was relatively uncommon in aphakic detachments. Vitreous opacities were found in 46 per cent of the phakic eyes and 10 per cent of the aphakic eyes. The incidence of cystic and myopic degeneration of the retina was higher in phakics than in aphakics.

Findings indicating a poor prognosis in phakic eyes were total detachment of the retina, a positive aqueous ray, and an age over 70 years. Among aphakics prognosis was poor if the detachment had been present over two months.

Although it was difficult to reach definite conclusions as to the best operative technique since each group was small, the use of Walker pins and Lacarrere punctures appeared to be most successful.

Treatment of Myopia by Visual Training, Cyril W. Lundvick, M.D., *Northwest Medicine*, February, 1948, published by the Northwest Medical Publishing Association, 225 Cobb Building, Seattle 1, Washington.

Dr. Lundvick discusses the investigation financed by the Curtis Publishing Company in 1944 of methods of visual training in the treatment of myopia. Dr. Skeffington, director of the Graduate Clinic Foundation of St. Louis, supervised the training program;

and Dr. Frank B. Walsh directed the members of the staff of the Wilmer Ophthalmological Institute at Johns Hopkins Hospital and University in handling the ophthalmic side of the study.

After examination at the Wilmer Institute 103 patients were chosen as having uncomplicated myopia and were suitable for the training program. Results of the Wilmer Institute examination were filed with the Curtis Publishing Company and the patients turned over to Dr. Skeffington for visual training which was carried on independent of the Wilmer Institute staff. After visual training (about three months) the patients were examined again at the Wilmer Institute and the results reported in a recognized medical periodical before reporting to the Curtis Publishing Company or to Dr. Skeffington's group.

Retinoscopic examination under cycloplegia showed no improvement in any patients due to visual training. Subjective tests showed a low grade improvement on all charts in 29 per cent of patients (high myopes where the increase did not contribute much to visual power); 30 per cent showed some over-all improvement; 31 per cent showed no appreciable change in visual acuity; 9 per cent showed a decrease in visual acuity. The examiners concluded that the improvement noted in the first two groups was education in correctly interpreting blurred visual images.

Dr. Lundvick concludes with the following statement: ". . . with the possible exceptions of educating some patients to interpret blurred images more carefully and convincing others that they could see better even though there was no actual improvement, the treatment of myopia by visual training has no value."

A Common Extraocular Muscle Imbalance, E. H. Coachman, M.D., *The Eye, Ear, Nose and Throat Monthly*, April, 1948, published monthly by the Professional Press, Inc., 5 N. Wabash Avenue, Chicago 2, Illinois.

The author presents the following conclusions regarding latent vertical phoria, a muscle imbalance commonly overlooked:

"Latent vertical phoria should enter into the differential diagnosis in suspected cases of Ménierè's syndrome, 'sinus' and 'sick' headaches, train and car sickness, and is present in approximately 80 per cent of routine refraction cases.

"The diagnosis and correction of this vertical imbalance brings added comfort to glass wearers and its technique is worth incorporating into one's routine office procedure.

"Latent vertical phoria is commonly associated with some endocrine dysfunction, but does not indicate the specific gland at fault, nor its rate of activity. It also may be occasionally of traumatic or developmental origin. It is commonly overlooked unless the signs and symptoms leading to its detection are kept in mind in refraction cases."

Symposium: Corneal Transplantation, *Transactions of the American Academy of Ophthalmology and Otolaryngology,* March-April, 1948, published bimonthly, by the Douglas Printing Company 109 North 18th Street, Omaha 2, Nebraska.

Of the five sections of the symposium on corneal transplantation, the one on "Results" by William C. Owens, M.D. and his collaborators, represents the combined data pooled from a group of clinics in order to obtain sufficient material for statistical analysis. The American Academy of Ophthalmology and Otolaryngology made the arrangements for this cooperative clinical study, which includes data on 417 corneal transplant operations. Dr. Owens provides the following conclusions:

"1. A statistical study has been made of the results of 417 corneal transplant operations.

"2. The graft remained clear in 36.5 per cent of the cases.

"3. The percentage of clear grafts varied greatly with the cause of the corneal opacity. The best results were obtained in cases of keratoconus (65.2 per cent), hereditary dystrophy (58.8 per cent), interstitial keratitis (49.0 per cent) and nonspecific inflammatory scars (46.9 per cent). Poor results were obtained in cases with active keratitis or corneal ulcer (23.1 per cent), scars from chemical burns (20.8 per cent), trauma (18.2 per cent), or gonococcal ulcers (8.7 per cent). No clear grafts were obtained in cases with Fuchs' dystrophy.

"4. The larger the size of the corneal opacity and the greater the extent of corneal vascularization, the less were the chances of obtaining a clear graft.

"5. In a group of 79 cases selected as having the most favorable prognosis, 68.3 per cent of the grafts remained clear.

"6. Of 229 cases with preoperative vision of 20/200 or less, 36.2 per cent obtained a postoperative vision of 20/100 or better. A group of 58 cases with preoperative vision of 20/200 or less was selected as having the most favorable prognosis. Of these cases, 55.2 per cent obtained a postoperative vision of 20/100 or better.

"7. The visual results after corneal transplantations in patients with preoperative vision of 20/100 or better do not warrant the risk of the operation."

Cataract Surgery: Recent Advances, Elbyrne G. Gill, M.D., *Southern Medical Journal,* March, 1948, published monthly by the Southern Medical Association, Empire Building, Birmingham 3, Alabama.

After reviewing the history of the gradual evolution from the extracapsular to the intracapsular method of cataract extraction, the author summarizes as follows:

"We use local anesthesia, van Lint akinesia, a keratome incision widened to 180 degrees with scissors, a combination of two corneoscleral sutures, and a 180-degree conjunctival flap closed by additional sutures. We hold the lids open and the eye down with silk sutures, and deliver the lens by the Verhoeff method. The patient is generally allowed out of bed twenty-four hours after operation. With this technic we have achieved a visual acuity of 20/25 or better in 90 per cent of cases; we have reduced hemorrhage to 3 per cent and vitreous loss to 2 per cent. We emphasize that this operation is not designed for speed but for safety and accuracy."

Syphilitic Primary Optic Atrophy, A Review of 54 Cases, Sidney Levin, M.D., Laurence D. Trevett, M.D., and Milton Greenblatt, M.D., *The New England Journal of Medicine,* November 20, 1947, published weekly by the Massachusetts Medical Society under the jurisdiction of the Committee on Publications, 8 Fenway, Boston 15, Massachusetts.

Reporting on 54 patients with syphilitic primary optic atrophy, ranging in age from 19 to 62 (maximum number of cases occurring

between 40 and 50 years), the authors provide the following summary:

"In 54 patients with syphilitic primary optic atrophy, seen at the Boston Psychopathic Hospital between 1921 and 1944, the first manifestation of neurosyphilis was usually gradual loss of vision.

"Although syphilitic primary optic atrophy occurs most frequently in association with tabes, as a rule the tabetic features are mild.

"Some abnormality of the pupils characteristic of neurosyphilis is almost always present.

"A negative blood Wassermann or Hinton test is rare in untreated or inadequately treated cases.

"Syphilitic primary optic atrophy is, in general, accompanied by a strongly abnormal cerebrospinal fluid (Group III) characteristic of the paretic formula. This finding is consistent with the studies of Bruetsch, in which the pathologic basis of this disorder was found to be more like the process of general paresis than that of tabes.

"Syphilitic primary optic atrophy may respond well to fever therapy provided that treatment is started before useful vision is lost. Of 16 patients treated with artificial fever only 2 (13 per cent) were found to be blind on follow-up study of two years or longer. Although the available data are insufficient to determine whether artificial fever is as effective as malaria therapy, the former is definitely an important addition to the therapeutic armamentarium."

The Effect of Visual Training on Existing Myopia, H. Rommel Hildreth, M.D., William H. Meinberg, M.D., Benjamin Milder, M.D., Lawrence T. Post, M.D., and T. E. Sanders, M.D., *Transactions, American Academy of Ophthalmology and Otolaryngology,* March–April, 1947, published bimonthly by the Douglas Printing Company, 109 North 18th Street, Omaha 2, Nebraska.

The authors report on visual training as a means of improving the sight of myopic patients and summarize their findings as follows:

"1. In an attempt to improve the visual acuity, a series of 54

selected cases of myopia was given a course of visual training which was preceded and followed by a complete ophthalmologic examination.

"2. The technic of training, which was based on standard accepted procedures in this field, was given by an optometrist while the pre- and post-training examinations were made by a group of ophthalmologists.

"3. Thirty, or 55.5 per cent, of the cases showed no change in their acuity, while twelve, or 22.2 per cent, showed a definite improvement; the best results being obtained in the cases with small amounts of myopia. Twelve patients, that is 22.2 per cent, showed a change so slight as to be excluded in the results. The change in the improved group averaged 27 per cent. Eleven of the twelve improved patients were rechecked at an interval of 15 to 23 months following completion of training. Five of these retained their improvement, while only one was worse than pretraining acuity.

"4. There was no change in the refractive error, nor significant alteration in the ocular neuromuscular mechanism. It was thought that the improvement probably occurred because of an improved reception due to stimulation of the visual effort, as the best results occurred because of an improved reception due to stimulation of the visual effort, as the best results occurred in those patients with a pretraining acuity less than would be expected from their refractive error since 73 per cent of this type improved.

"5. Visual training has a definite, but limited, value in some myopic patients, preponderantly in those whose vision does not correspond with their known myopia. The effectiveness of visual training must be increased if it is to be generally applicable. Visual training merits further study from the ophthalmologist particularly in relation to progress in myopia."

Hypovitaminosis A in Ophthalmology, R. L. Schmidtke, M.D., *Archives of Ophthalmology*, May, 1947, published monthly by American Medical Association, 535 North Dearborn Street, Chicago 10, Illinois.

This author has reviewed the literature and correlated the facts pertaining to deficiency of vitamin A (the ophthalmic vitamin), so

that better clinical application of these facts may be made. His conclusions are:

"1. Hypovitaminosis A may exist in persons who presumably are receiving an adequate diet.

"2. Even in the absence of demonstrable ocular lesions, poor dark adaptation is not presumptive evidence of vitamin A deficiency.

"3. Fasting vitamin A levels of the blood are of value as a diagnostic aid in establishing the existence of a deficiency.

"4. More reports on early ocular changes in vitamin A deficiency need to be made before biomicroscopic examination can be a real diagnostic aid.

"5. The corneal and conjunctival lesions in vitamin A deficiency are probably neurotrophic, resulting from degenerative changes in the trigeminal nerve.

"6. Keratoconjunctivitis sicca is probably one of the many ways in which vitamin A deficiency manifests itself.

"7. Some of the heretofore unexplainable ocular congenital anomalies are undoubtedly due to a vitamin A deficiency in the mother at some critical time during the period of gestation.

"8. Vitamin A deficiency may be caused by (a) reduced consumption; (b) defective absorption; (c) uneconomical utilization and (d) excessive utilization (1) during rapid growth, (2) during illnesses or (3) during pregnancy.

"9. Parenteral administration of vitamin A is sometimes indicated.

"10. Topical application of vitamin A is of doubtful value."

Book Reviews

READING AND VISUAL FATIGUE. Leonard Carmichael, Ph.D. and Walter F. Dearborn, M.D., Ph.D. Boston: Houghton, Mifflin Company, 1947. 483 p. ill.

In order to find an answer to the question of whether visual fatigue results from extended periods of reading, Dr. Leonard Carmichael, President of Tufts College and Director, Tufts Research Laboratory of Sensory Psychology and Physiology, and Dr. Walter F. Dearborn, Director, Psycho-Educational Clinic and Professor of Education, Harvard University, carried on an intensive experiment with a group of Harvard students and Arlington High School pupils.

The results, described in *Reading and Visual Fatigue*, indicate that after six hours of continuous reading no measurable fatigue was shown by the members of the groups. Preceding the reading experience, all participating students were given tests for visual and stereoscopic acuity. Devices were used throughout the entire reading period to assist in checking conditions and in reaching conclusions; a statistical analysis was made of all measurements used in the experiment.

Two publications were selected that differ widely in subject matter and method of presentation—*Lorna Doone*, by Richard Blackmore, and *An Inquiry into the Nature and Causes of the Wealth of Nations*, Volume 2, by Adam Smith. Comprehension of material was checked by tests incorporated into the reading experiment. The methods of carrying on the study and of determining results, together with careful explanations of devices used, and of the environmental conditions under which the tests were carried on, are given in detail. An extensive bibliography is included.

WINIFRED HATHAWAY, *Associate Director*
The National Society for the Prevention of Blindness.

HOW TO INTERPRET SOCIAL WELFARE. Helen Cody Baker and Mary Swain Routzahn. New York: Russell Sage Foundation, 1947. 141 p. ill.

State and local groups engaged in activities for the prevention of blindness and the conservation of vision will find this study course in public relations very helpful as a manual on publicity methods. It brings up to date a "how to do it" book published by the same authors 10 years earlier.

The subject matter is organized under three main headings: telling your story by the spoken word; telling your story by the written word; and telling your story in pictures. Individual chapters deal with newspaper publicity, the use of radio, preparation of the annual report, editing of bulletins and newsletters, handling of meetings, etc.

Employment of visual aids is stressed, including motion pictures, slide films, exhibits, photographs and pictographs. A chapter dealing with fund raising is illustrated by various successful appeal letters.

This book is particularly useful for executives of small organizations whose budgets do not permit the employment of a publicity director or public relations firm. It enables the busy executive who, in addition to his other duties, must prepare an occasional press release, radio talk, annual report and fund raising letter, to use this textbook as a reference work and a source of ideas.

PAMPHLETS THAT PULL. Alexander L. Crosby. New York: National Publicity Council for Health and Welfare Services, Inc. 1948. 36 p.

This is one of the best of the "how to do it" manuals issued by the National Publicity Council for Health and Welfare Services, Inc. It provides much practical information concerning typography, paper stock, the use of color and art work, layout, printing costs and similar technical information of value to anyone dealing with printers.

The attractive layout of this pamphlet itself, the choice of large 14-point type, and the use of easy-on-the-eye green as a second color for heads and subheads are the best possible arguments in favor of the author's text. He has compressed a great deal of useful material in a few pages.